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**BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

Minutes of Public Hearing/Meeting on November 9, 2005, in Lame Deer, Montana, to consider the proposed adoption and amendment of rules pertaining to nondegradation requirements for electrical conductivity (EC) and sodium adsorption ratio (SAR) and definitions for technology-based effluent limitations and the adoption of rules pertaining to minimum technology-based controls and treatment requirements for the coal bed methane industry.

Call to Order

Chairman Russell called the public hearing to order at 10:50 a.m., on Wednesday, November 9, 2005, at the Charging Horse Casino, Lame Deer, Montana.

Attendance

Board Members Present: Chairman Joseph Russell, Kim Lacey, Gayle Skunkcap, Bill Rossbach, Robin Shropshire, and Don Marble.

Board members Absent: None

Board Attorney Present: Chris Busley, Assistant Attorney General, Agency Legal Services Bureau

Board Secretary Present: Joyce Wittenberg

Court Reporter Present: Laurie Crutcher

Department Personnel Present: Richard Opper, Joyce Wittenberg (Board Secretary), Tom Livers (Board Liaison), John North, Art Compton, Bob Bukantis, George Mathieus, Tom Reid, and Christian Levine

Interested Persons Present: See attached sign-in sheets.

Introduction by Chairman Russell

Chairman Russell indicated that copies of the Notice of Public Hearing for the proposed rulemaking were available on a table near the room entrance and that anyone wanting to submit testimony or written materials at the hearing should complete and turn in a Notice to the Presiding Officer form on the same table.

Chairman Russell read the Notice of Function of Administrative Rule Review Committee as required by Section 2-4-302(7), MCA, and informed the persons at the hearing of the rulemaking interested persons list and of the opportunity to be placed on that list as provided by Section 2-4-302(2)(a), MCA.

Chairman Russell stated that the Notice of Hearing (Notice No. 17-231) was published in 2005 Montana Administrative Register, Issue No. 19, pp. 1844-1859. The notice indicated that interested persons could submit oral or written comments at the hearing or written comments to the Board of Environmental Review (BER) by December 2, 2005.

Chairman Russell summarized the notice, indicating that the BER proposes to amend ARM 17.30.670 to modify the nondegradation criteria applicable to electrical conductivity (EC) and sodium adsorption ratio (SAR) and to clarify that compliance with water quality standards and nondegradation thresholds for coal bed methane wastewater will be required and that compliance will be measured at low flow events. The appropriate nondegradation criteria for EC and SAR are the criteria for harmful parameters. Chairman Russell indicated that ARM 17.30.1202 was being amended to add definitions clarifying the proposed technology-based controls and treatment requirements. The proposed technology-based controls and treatment requirements are a combination of zero discharge and treatment-based effluent limitations. Discharge will be prohibited by requiring reinjection in suitable geologic formations unless site-specific geologic conditions make zero discharge technically infeasible. To the extent zero discharge is infeasible, the rules impose effluent limitations at the end of the pipe prior to discharge based upon existing treatment technologies. A waiver from zero discharge may be allowed, upon application and a hearing, if the requirement is not technically feasible. The proposed rulemaking exempts wastewater used for stock watering purposes.

Finally, Chairman Russell provided the BER's legal authority to undertake the rulemaking and provided ground rules for the hearing.

Statement by Department of Environmental Quality

DEQ Deputy Director Tom Livers indicated that the proposed rulemaking was not initiated by DEQ but by the BER's acceptance of a petition for rulemaking.

DEQ Planning Division Administrator Art Compton summarized the rulemaking petition, indicating that it sought to adopt new rules setting minimum treatment requirements for the coal bed methane industry. Reinjection of produced water would be the only means of water management, resulting in zero discharge. If reinjection is not feasible due to site-specific conditions, the produced water would be discharged under a state discharge permit containing proposed effluent limits. An exemption is provided for produced water used to water stock. The petition sought to amend existing rules to classify sodium and salinity as harmful parameters; a change in water quality caused by the discharge of produced water is considered significant under nondegradation proceedings if the change in water quality is greater than 10% of the applicable standard or the existing water quality is 40% or greater of the standard. The petition sought to replace the current provision allowing a variable discharge of produced water based on

the actual flow of the stream with the requirement that the amount of discharge be based on 7Q10 flows, a surrogate for very low flow.

Proponents

Clint McRae represents Northern Plains Resource Council (NPRC). NPRC seeks to protect family farms and ranches, preserving their clean water and unique way of life. Testimony will be presented by members of the Northern Cheyenne Tribe, area landowners, and landowners in Wyoming impacted by CBM development.

Joe Fox is a member of the Northern Cheyenne Tribal Council. He indicated that the Northern Cheyenne Tribe was a unique nation situated in the heart of energy development. The Tribe strongly supports environmental protection of its air, water, land and other resources and favors reinjection as the safest means of handling produced water. Water is a very sacred element of Tribal culture.

William Walks Along is a former tribal council member and is currently the Tribal Administrator. He conveyed a welcome to the BER from Tribal President Eugene Little Cloud. The Northern Cheyenne Reservation is the last remnant of the Indian nation's ancestral hunting and gathering homeland and much of the tribe's limited financial resources have been spent protecting its homeland and surrounding environment. The Tribe has consistently sought more environmentally conscious regulations to prevent degradation of rivers and streams and believes the best available treatment technology for produced water should be required by state and federal governments.

David Milligan is the Environmental Protection Department Director for the Tribe. He indicated that the Tribe supported removing the exemption granted to CBM developers under the current rules and incorporating definable numeric criteria for the purpose of monitoring and regulating the discharge of produced water. He also indicated Tribal support for reinjection but indicated that language needed to be clarified. CBM developers will seek waivers from the zero discharge requirement on the basis that geology and hydrogeology will not allow reinjection and on the basis that reinjection is not feasible given the Safe Drinking Water Act. Treatment should be required prior to reinjection if the quality of the receiving aquifer is better than the produced water. The stock watering exemption should require stock watering ponds to be lined to prevent infiltration of the produced water into groundwater. Justification for the zero discharge requirement should be broadened beyond pollution impacts. Zero discharge avoids increased turbidity and the impacts of increased flows and temperature in the receiving water on fisheries habitat.

Joseph Walks Along spoke on behalf of the Northern Cheyenne Environmental Protection Department. Tribal members and people living on or near their homeland are greatly concerned about the future of surface water. The Tribal Council has approved an anti-degradation policy and review process. Any proposed activities that would lower ambient quality of any parameter by more than 5 percent, or increase pollutant loading in a segment by more than 5 percent, is

presumed to pose a significant degradation. In addition, numeric criteria for EC and SAR have been included in the Tribal water quality standards.

Gail Small lives on a ranch near Lame Deer Creek and is director of Native Action, a nonprofit multi-issue organization that has been involved in a number of natural resource issues. She graduated from law school specializing in western water law. The Cheyenne people are good neighbors and work with state and federal agencies. For example, the Tribes cooperated with the State to protect the Tongue River Dam, providing a \$10 million interest free loan for repair. In return, water rights were quantified.

Fidelity is not a good neighbor, going into court claiming that the State owned the riverbed and that the methane under the riverbed could be leased without tribal consent. Every Tribal administration has prioritized protecting air, water and wildlife resources to ensure the future of the Tribal homeland. The Tribe's limited water resources are a special concern. Fidelity makes 90 percent profit from methane gas, a public resource, and, unlike the Cheyenne people, plans to leave the area in 10 to 15 years. It is reasonable to require industry to take a long-term integrated approach to CBM development, including putting water back into the ground.

Norma Bixby is a State Legislator for House District 41 that includes the Reservation. She also is a landowner on Rosebud Creek with a well. That area is vulnerable because it is sub-irrigated from the creek. The proposed rulemaking is the only sensible solution to protect the water. It allows farmers and ranchers to use methane water for their stock watering. It also protects the water resource by requiring industry to put the produced water back into the ground if feasible, and where not feasible, by requiring industry to remove the salts and other minerals.

Kenneth Medicine Bull lives in the Tongue River Valley. A study is needed to assess air and noise pollution and impacts to wildlife that may result from CBM development. He also expressed concern that the holding ponds may serve as breeding grounds for mosquitoes carrying the West Nile virus. Special consideration must be given for water quality, a life sustaining element used in sweat ceremonies.

Art Hayes, Jr., owns the Brown Cattle Company and represents the Tongue River Water Users. USGS Report 02-4045 indicates that water in the shallow coal bed of the Fort Union Formation has not recharged since 1952 and may be significantly older. Thus, the recharge to the aquifers is probably very slow. Mr. Hayes submitted a copy of USGS Report 02-4045.

While water in the Flowers Goodale Coal Bed may not be used in the Decker area for stock or domestic use because of its depth, it is one of the primary aquifers used on the Cheyenne Reservation. EC readings from the stateline gauge below the dam were distributed. They indicate the ECs were reaching almost 700 in the Tongue River. It is unwise to continue relying on spring runoff to dilute the discharged water. Three studies on the toxicity of sodium bicarbonate were provided, including a semi-annual progress report prepared by Montana Fish, Wildlife and Parks and the U.S. Geological Survey entitled "Toxicity of the Major Salt (Sodium Bicarbonate) From Coalbed Methane Production on Fish I the Tongue and Powder River Drainages in Montana." Sodium bicarbonate is a major constituent of discharge water and is toxic to aquatic life.

Wally McRae's address is Rocker Six Cattle Company, Forsythe, Montana. He discussed CBM development in southeastern Montana in the context of colonization. Many things are taken from a location and not replaced with something of value. The BER should not allow the water resource to be taken.

Dennis Getz lives in Glendive and farms in Wibaux County. So Human an Animal, written by American biologist Renee Dubois, states that environmental ugliness resulting from poverty can be forgiven but not if it is produced to acquire wealth. Whether there will be productive farm ground after the CBM boom depends on responsible development from energy companies and responsible decisions by the BER.

Beth Kaeding is from Bozeman and is a member of NPRC. The proposed rulemaking will provide responsible development of CBM, preserving other uses of the land by ranchers, farmers and Native Americans.

Irv Alderson lives in Birney and represents the Bones Brothers' Ranch. Ranchers have survived blizzards, droughts, hoppers and hail and probably can live with the compressor stations, roads, dust, pipelines and transmission lines associated with CBM development. They can't survive loss of the springs in the hills and the wells in the valleys. The BER should consider reinjection.

Terry Punt represents the Bones Brothers' Ranch. The proposed rulemaking will eliminate some impacts to water rights caused by CBM development such as the loss of groundwater and impacts to the quality of irrigation water.

Ken Nelson lives in Colstrip. As a sportsman, he is concerned about the effects on the water quality of creeks and rivers if reinjection is not required. Responsible CBM development means working with landowners regarding their water needs and requiring no degradation of ground water or soil. Responsible CBM development also means working with landowners to determine where roads, power lines and pipelines are to be installed. Hopefully, common sense can prevail and allow both economic growth and preservation of land and water for the native heritage, recreation and agriculture.

Nick Golder ranches adjacent to the northern border of the Reservation. Despite the recent drought, development of the water resource on his ranch has allowed him to keep his livestock. The area received significant precipitation last spring but a lot of springs did not rebound. This causes him to be concerned about pumping water out and then throwing it away. Based on statistics in the EIS, the amount of water to be pumped out would create a body of water ten feet deep, one mile wide, and 208 miles long. Reinjection and treatment where reinjection is impossible makes a lot of sense. Technology is developing that allows the coal bed methane gas to be extracted without pumping the water out. The BER should work carefully and cautiously.

Allan Minher represents Big Horn Well Service and favors CBM development. In some cases, it is not necessary to extract water to release coal bed methane gas. Several wells go through multiple coal veins, including the water well at the Charging Horse Casino. Produced water could be used to improve rangeland and build wetlands.

Jill Morrison ranches in Sheridan County, Wyoming, and works with the Powder River Basin Resource Council. The Wyoming portion of the Powder River Basin produces one and a half million barrels of water a day and most is discharged to the surface. There are 2,682 in-channel reservoirs and a significant number of off-channel reservoirs that have contaminated shallow ground water. Dissolved solids increased from 2,000 to over 30,000 and sulphates increased from 800 to over 8,000. Discharges to ephemeral drainages have destroyed some of Wyoming's best grasses and a lot of trees. There's been a lot of erosion from discharge water and general water quality degradation. Landowners have lost artesian, regular stock and domestic wells, many of which have not been replaced by industry. Wyoming is attempting watershed-based permitting that has resulted in ephemeral drainages being turned into perennial drainages running to the Tongue and Powder Rivers. Industry is condemning private property to discharge produced water, dig ditches and channelize flat ephemeral drainages where the best grass has been. CBM can be developed in a way that does not cause significant damage, but the cheapest way is surface water discharge or the use of reservoirs.

With her written testimony, Ms. Morrison submitted photographs taken over the last five years documenting problems with CBM discharge water, including CBM pits, reservoirs, direct discharge to ephemeral drainages, irrigation, evaporation misters and resulting problems such as shallow groundwater contamination, leaching of salts from clay soils, salt loading of channels, killing of vegetation and trees, damage to soils, flooding of downstream landowners, erosion and water quality degradation. A recent resolution executed by landowners and the Lake DeSmet Conservation District was also attached. The resolution expresses opposition to Wyoming's watershed-based permitting process for Four Mile Creek and requesting no additional discharge be allowed in the drainage. She indicated that the CBM industry is pursuing the right to condemn private property to dig a ditch and channelize the discharge of CBM water in ephemeral drainages. The greatest fear of the CBM industry and Wyoming is that Montana will have the leadership to wisely manage CBM development, forcing developers in Wyoming to clean up their act. CBM developers can be required to meet high standards and still proceed with development of the CBM resource.

Marjorie West described the impact of CBM development on her ranch in Campbell, Wyoming. Produced water was discharged down an ephemeral drainage that crossed the ranch. In the winter of 2000/2001, the water froze in the creek. The water spread as more continued to come down the drainage, causing her to lose 75 to 85 acres of prime hay meadow that had existed in the ephemeral drainage. In addition, the flooding caused the ranch to lose 200 cottonwood trees. The flooding has continued every year. In addition, the CBM developer erected nine misters on land the ranch leases from the State without her agreement. The goal of CBM developers is to produce gas as quickly as possible. They do not care what is left behind for others to clean up.

Bernadette Barlow ranches west of Gillette, Wyoming. Her cow/calf operation depends on native grass growing in meadows along an ephemeral creek. For two years, she and eight other ranchers attempted to coordinate resource management with the seven CBM developers without success. In the Spring of 2003, upstream in-channel reservoirs overflowed, saturating her property with low quality CBM water. When the water subsided, many acres of the meadow

were covered with white salt. Fifteen heifers contracted foot rot from the saturated soil. Although 2003 was a dry year, many potholes in the drainage filled with CBM water with SAR ranging from 11 to 32 and EC from 7,000 to 16,000. Ms. Barlow submitted her testimony in writing and attached photographs of impacts due to CBM development (including damage to meadows and saline seeps and deposits) and the flooding of Spotted Horse Creek, salt deposits next to Spotted Horse Creek, and Cottonwoods killed by CBM discharge. She also submitted a letter she submitted to the Wyoming DEQ dated October 17, 2005, listing concerns with a proposed renewal of Yates Petroleum Corporation's NPDES permits and a response letter from the Wyoming DEQ.

Jennie Parker has a small ranch along the Tongue River. Water has spiritual qualities and to the Cheyenne, water means life. Water needs to be treated prior to reinjection and the effects of produced water on cattle, wild animals, birds, and crops need to be considered.

James Walks Along is a tribal member. Water is important and is to be used, cherished and respected. A tribal ceremony requires water to be withheld from an individual for three or four days so that the blessing of water may be experienced when the first drink of water is subsequently taken.

Geri Small is a former president of the Tribe. Water is sacred. If the groundwater and springs are taken from the Tribe, the water spirits of the Tribe are also taken.

Judith Spang serves on the Tribal Council and the Northern Cheyenne Resource Board. The Tribal homeland has a rich history and is of great value to the Cheyenne. The river has helped her spiritually, easing her depression following the deaths of her grandmother and father.

Joe Notti ranches in southern Rosebud and Big Horn Counties. New restrictions that slow down energy development are not needed. Energy needs to be developed within the United States instead of sending money to the Middle East.

Don Youngbauer is employed by the Rosebud Conservation District in Forsyth. Technology is developing that allows extraction of methane gas without removing water and, thus, avoids the resulting impacts. The technology has only been implemented on a small scale. The technology, however, has been developed to the point that it should not be ignored and may potentially lead to solving the energy crises on a long term basis. The Rosebud Conservation District is conducting research on the technology with the Montana State University.

Herbert Bear Chum is an ordained camp crier for the Tribe. He supported previous testimony on the importance of water to tribal members.

Teddie McMahon is a Tribal elder. Only about 500 out of 5000 tribal members voted against allowing the production of oil in the late 70's. Members should vote against allowing coal bed methane production if that were ever the subject of a tribal referendum. Money would probably prevail, however, and money doesn't buy clean air, water or anything natural.

Joe Waters is a Tribal member. Capitalism may not allow future generations to have fresh fish, water, and air. The Cheyenne homeland needs to be protected and Tribal, federal and state governments should work together to do so.

Written Testimony

An unknown person submitted an article published in the *Journal of Environmental Quality* entitled “Soil Chemical Changes Resulting from Irrigation with Water Co-Produced with Coalbed Natural Gas.” The article concludes that CBM waters used for irrigation in northwestern Powder River Basin are generally unsuitable for direct land application. Soil analyses indicated there were buildups of salt and sodium in root zones of irrigated sites. Although differences in soil EC and SAR were more pronounced between irrigated and control sites at Site 1 having fine-textured soils and subject to irrigation for longer periods of time, trends of salt and sodium accumulation were evident at other sites. Suitable precautionary measures and proper treatment of CBM produced water, especially removal of excess sodium, is necessary before it should be used for irrigation and or land disposal.

**BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

Minutes of Public Hearing/Meeting on November 10, 2005, in Miles City, Montana, to consider the proposed adoption and amendment of rules pertaining to nondegradation requirements for electrical conductivity (EC) and sodium adsorption ratio (SAR) and definitions for technology-based effluent limitations and the adoption of rules pertaining to minimum technology-based controls and treatment requirements for the coal bed methane industry.

Call to Order

Chairman Russell called the public hearing to order at 8:07 a.m., on Thursday, November 10, 2005, in Room 106 of the Administration Building, Miles Community College, Miles City, Montana.

Attendance

Board Members Present: Chairman Joseph Russell, Kim Lacey, Gayle Skunkcap, Bill Rossbach, Robin Shropshire, and Don Marble.

Board members Absent: None

Board Attorney Present: Chris Busley, Assistant Attorney General, Agency Legal Services Bureau

Board Secretary Present: Joyce Wittenberg

Court Reporter Present: Laurie Crutcher

Department Personnel Present: Richard Oppen, Joyce Wittenberg (Board Secretary), Tom Livers (Board Liaison), John North, Art Compton, Bob Bukantis, George Mathieus, Tom Reid, and Christian Levine

Interested Persons Present: See attached sign-in sheets.

Introduction by Chairman Russell

Chairman Russell gave substantially the same introduction as at the hearing/meeting held on November 9, 2005.

Statement of Department of Environmental Quality

Tom Livers indicated that the proposed rulemaking is in response to a petition accepted by the BER, that the final hearing will be held on December 1, 2005, in Helena, and that the public comment period will close the following day.

Art Compton indicated that proposed rulemaking adopts new rules pertaining to water treatment requirements for the CBM industry. The new rules requires zero discharge by requiring all produced water to be reinjected back into an aquifer. The new rules also establish numeric effluent limits on the portion of CBM water that cannot be reinjected because of site-specific conditions. An exemption is provided for CBM wastewater that is put in a tank and that will be used by the surface owner for watering stock.

He also indicated that the proposed rulemaking amends existing rules adopted two years ago that relate to the nondegradation requirements for salinity and sodium, and flow based permit requirements for discharges from CBM wells. The current rules provide a narrative standard that there be no measurable effect on beneficial uses. Under the proposed rulemaking, the new nondeg standard would be 40 percent of the standard on the water body that is receiving the discharge and the discharge could not exceed 10 percent of the standard. The proposed rulemaking would use 7Q10 flows as the diluting amount of water in the stream instead of the flow based permitting approach currently used.

Proponents

Julia Page is a member of NPRC. It makes no sense to allow CBM developers to continue to waste water and potentially ruin soil under current development practices. She toured Fidelity's operations in Wyoming where Fidelity is using water with SAR between 40 and 50 for irrigation. To reduce the SAR, Fidelity adds gypsum and sulphur. Managed irrigation is basically water disposal that is destructive in nature, concentrating salts on the soil surface. Returning the water to the ground is a much better way to dispose of the water. The produced water can be reinjected or treated and still have a profitable CBM industry. Ms. Page submitted her testimony in writing as well.

David Swartz is general manager of the Buffalo Rapids Project that focuses on the confluence of the Yellowstone and Powder rivers. The water in the sumps at a pumping station 1.75 miles below the confluence has elevated SARs. Copper sulfate was found deposited in the pump propellers. The Buffalo Rapids Project's Board of Control strongly supports reinjection or treatment of CBM product water before it is released into a stream.

Pat Michelle has irrigated farm land served by the Buffalo Rapids Project. She also is a shareholder of MDU Resources, a Dawson Resource Council member, and past member of the Montana AFL-CIO Executive Board. The Powder River Basin has a greater water ratio - 2.2 barrels per thousand cubic feet of gas – than most water producing basins and the proper disposal of water is imperative. The BER should follow a guiding principle followed by MDU Resources of minimizing waste and maximizing the resource. This can be done by requiring reinjection and treatment under the proposed rulemaking.

Claire Whitcomb is the chairperson for the Carbon County Resource Council, and affiliate of NPRC. The best and only solution is the reinjection or treatment of produced water. This protects family farms and ranches in Carbon County.

Ray Muggli operates an irrigated farm on the lower Tongue River. In the past 58 years, the farm has produced alfalfa, wheat, oats, barley, pinto beans, soy beans, faba beans, field peas, corn, beef cattle and hogs. The present land application of CBM produced water is backwards. Why apply high sodium water on the ground and then try to clean it up when the water can be treated before it is put on the ground. Treatment would eliminate creating sodic soils, high sodium runoff and expensive reclamation. It would also eliminate sodium leaching into the drainage and the creation of serious soil and crop problems downstream. Water should be put back where it came from for future use. The present law is not effective. If standards are exceeded, he has to wait seven days before good quality water eventually reaches his farm. By that time, the alfalfa may be stressed and not able to recover. The methane industry is one of the richest in the nation. If oil can be squeezed out of shale rock, water can be reinjected. Mr. Muggli submitted his testimony in writing and attached photographs showing impacts from CBM development.

Mark Fix is a rancher and irrigator on the Tongue River and is the chairperson of the Coal Bed Methane Task Force for NPRC. Because of high salt levels, irrigation is marginal on the Powder River and is only undertaken by those with sandy soils that drain well. In Wyoming, ranchers are being sued by CBM developers to discharge water across ranches and are losing their water wells due to aquifer drawdown. The amount of water taken from the CX coal field since 1999 would be sufficient to water 680,000 head of cattle, about a quarter of all cattle raised in Montana. This is a terrible waste of a valuable resource. The proposed rulemaking is supported by three major irrigation groups in southeastern Montana, the Rosebud Conservation District, the Beartooth Stockgrowers Association, individual ranches, Trout Unlimited and other conservation interests. A 30% decline in alfalfa yields in 2004 is attributable to several factors, including salinity. Salinity levels at the mouth of the Tongue River were exceeded most of the summer. While rainfall was sufficient to flush out the Tongue River Reservoir in 2005, ranchers will be waiting again next spring for ample snowmelt and rainfall to flush out the salty water that has accumulated in the reservoir during the winter. Mr. Fix submitted written testimony as well.

Deanna Hoff is an irrigated farmer and member of the Dawson Resource Council, an affiliate of NPRC. She is also a commissioner of the Buffalo Rapids Irrigation District which is mandated to provide high quality water to its 400 members. Although the Yellowstone River was not been included in the assessment of impacts due to CBM development, changes have already been seen in the water. The proposed rulemaking will avoid the inherent water problems of CBM development and will ensure an adequate and suitable supply of water for future generations of farmers and ranchers.

Roger Muggli manages the Tongue and Yellowstone Irrigation District. His main concerns were the loss of aquifer and damage to the land's surface. Photographs of the Hysham Hills Rest Area were distributed showing failed attempts to grow lawn at the rest stop. The area was irrigated with water having SAR of 4.71 and an EC of 1570. At one point, soil was even removed and other soil brought in. The Custer County Commissioners support the proposed rulemaking. Mr. Muggli submitted his testimony in writing with the photographs.

Duane Mathison is a Custer County Commissioner and irrigator on the Tongue River. The Custer County Commissioners are not against CBM development as long as it is done responsibly and doesn't degrade or harm water. In order to maintain water quality, the Custer County Commissioners support reinjection or a thorough water purification process. Data collected since 1960 shows that the average SAR in the Tongue River is 1.5 SAR. Why can't that be the numerical standard?

Mary Fitzpatrick is the chair of NPRC. NPRC has worked for 34 years to ensure energy is developed in a manner that is compatible with agriculture and other existing economic activities. The proposed rulemaking will further this mission and ensure that future generations are able to ranch, farm, hunt and fish. Ms. Fitzpatrick submitted her testimony in writing.

Amy Myron is the chair of the Dawson Resource Council, a co-petitioner. The effects of CBM development are complex and ill understood. The damage needs to be mitigated by either reinjection or treatment of CBM discharge.

Peter Mickelson ranches northeast of Lewistown and uses water for both stock and irrigation. As any rancher or farmer, he has to live by rules. For example, he has to be licensed and tested for the use of chemicals. There is nothing wrong with an extractive industry having to follow rules, especially pertaining to water.

Margaret Scoles grew up in Powder River Country and has a degree in agronomy, concentrating in soils. She indicated she could live with impacts of a resource boom such as increased demands on social and medical services and law enforcement. She expressed concern, however, about the impact of dumping billions and billions of gallons of water in ponds and calling it a beneficial use, when ranchers already have 90 percent of the livestock water they need. She spoke in favor of reinjection and treatment. She also submitted written testimony indicating that she was disheartened to read that over 60 % of the groundwater in some areas and 20% over a broader area would be pumped into impoundments to evaporate and become a liability for the landowners, leaving saline unusable soil. Southeastern Montana has a growing tourism industry that shouldn't be harmed by CBM development.

Walter Archer is a rancher and farmer at the north and eastern edge of the area proposed for CBM development. Having grown up on a ranch where he hauled drinking water in a bucket from a well, he has developed a deep conviction that water needs to be conserved. The adoption of the proposed rulemaking will conserve water as well as protect water quality.

Douglas Campbell ranches south of Miles City and depends on flood irrigation for his hay fields and has to purchase additional hay for winterfeed. He is concerned that CBM development will damage soils and reduce the amount of hay that is locally produced, increasing his costs to purchase the additional winter feed. He urged adoption of the proposed rulemaking.

Charles Gebhart lives south of Miles City, represents the Tongue River Water Users Association and is the Water Commissioner for the Lower Tongue River. He graduated from MSU with a degree in agriculture science, majoring in soils and with a minor in agronomy. During his tenure

with the Soil Conservation Service in 1984, he came upon a farmer who had ruined his soil by irrigating it with water taken directly from the ground that had a low ratio of magnesium and calcium in relationship to sodium. The surface soils are classified as fine sandy loam, which is easy to irrigate. If the soil profile is examined, however, the soil two feet beneath the surface is primarily clay. Thus, the soil did not have good internal hydraulic conductivity and did not allow the salts to leach through the soil. Although the water produced by CBM development will be diluted by putting it into the Tongue or Powder River or Rosebud Creek, this just delays the impact.

Deborah Hanson lives in Miles City and spoke on her own behalf and that of friends that were unable to be present. Water is valued in eastern Montana. Referring to the adage that an ounce of prevention is worth a pound of cure, she expressed concern that it will be decades, if ever, that the aquifers are recharged. Reinjection and treatment protects the sustainable economic base of agriculture.

Wade Sikorski ranches in Fallon County. He does not have to worry about water for his livestock all winter because his winter pasture has two springs producing a stream of water about an inch round. CBM development can dewater aquifers twenty miles a way. It doesn't make sense to allow dewatering of these aquifers. He also submitted written testimony indicating that CBM development could bring a needed economic boom to the area for at least a couple decades. True economic development, however, must be sustainable. The large quantity of water CBM developers want to simply run down the creek are a vital part of any future economy. It shouldn't be wasted for an easy profit.

John Hamilton farms and ranches on the Tongue River and is a board member of the Tongue River Water Users Association. The Tongue River Basin in eastern Montana is one of the last prairie river systems in the country. The watershed is very immature and is loaded with salts and carbonates. Once the site of a salty sea, rains and floods have run across the surface picking up the salts and carbonates and flushing them down the river. The ground water acts as a bath, leaching the salts into the lower aquifers. It doesn't make sense to bring this water back to the surface, reversing hundreds of thousands of years of nature's way of cleansing the land.

The current standards are about two times the conductivity and four times the SAR of the historic levels of the river. He conducted a study on his ranch and determined the average SAR was 1.2. One winter, Liscomb Creek was jammed with ice and flooded a field where it froze. Liscomb Creek has SAR of 5 and conductivity of about 1800. When the ice melted, the ground turned white. The SAR of the soil that had been covered with ice was 6.7. Soil that had not been covered with ice had SAR of 1.233. Scientists indicate that the SAR of the soil will be a little bit above than the SAR of the irrigation water. Thus, the SAR went from 1.233 to 6 in one winter. That's high enough to limit production of the ground for who knows how long until enough fresh water again cleanses the soil.

The current standards violate the state constitution. Nondeg was exempted from the current standards. Nondeg was designed to protect rivers and streams of sparsely populated areas. The Tongue River has water that is just as good as water in streams in western Montana and deserve equal protection

When the current rules were made, natural gas was trading for about \$3 an MCF. It is now trading for \$11.80. There is enough room for CBM development to be done right without sacrificing one resource for another. If the current rules remain in place, a lot of options will be foreclosed. Soil with SAR of 3 will not support sensitive crops like beans and most vegetables. Increasing the SAR in the river will sacrifice the ability to make a living on the land and sacrifice the fisheries. Resources should not be sacrificed for economic development and corporate profits.

Bob Thaden owns acreage along the Tongue River and is growing wine grapes and hopes to open a winery. The area has better summer weather than Yakima, WA, which is an excellent wine region. Grapes are sensitive to salinity in the soil. Anything with an SAR of 4 presents problems. Small operations like his can make an economic and cultural difference in Miles City. His efforts should not be wasted because the soils are ruined with high salinity.

Karen Stevenson lives off the Baker highway. Although she is not a farmer or rancher, the livelihood and health of her community is contingent on her ag neighbors. That's why she supports the proposed rulemaking.

Stan Taylor is a property owner and irrigates hay land with water obtained from the T&Y irrigation system. He favors reinjection because it is in his economic interest, mitigates effects of aquifer depletion, and can be done with the CBM industry still making a profit. Agriculture is a renewable resource and CBM is not. Risking soil quality and the viability of Tongue River ranches and farms is bad business and simply not acceptable.

Kelly Radue has a ranch south of Miles City and is a member of the Tongue River Water Users Association. Her two artesian wells may be affected by aquifer depletion as well as the quality of her hay grounds. One resource should not be sacrificed for another.

Opponents

Calvin Rice believes the current rules do not allow produced water from being put into the Tongue River without treatment to an acceptable standard. He disagreed with those who say that CBM development produces water that is too pure for fish. Fish survive spring runoff, which is nearly distilled water. He also criticized reinjection, indicating that if the water is suitable for irrigation, farmers and ranchers want it all so that it is not wasted. As an example of reinjection, he indicated that Anadarko was transporting water 80 miles via a pipeline and dumping it into caverns where oil had been pumped; the water will mix with brine and never be recovered. He described himself as an uplander to distinguish himself from those who were on or near the river and currently irrigated. He questioned why he should be deprived of the opportunity to irrigate with CBM produced water. He also indicated that there was no such thing as "typical" methane water because it comes in every variety. He also has seen white areas of land in fields due to natural consequences near the Big Horn River. He hasn't seen similar areas along the Tongue or Powder rivers despite the fact that there are almost 30,000 wells in Wyoming.

Janet Rice lives about 10 miles west of Broadus and believes the current rules will work if given a chance. She lives on a hill and would like to use any water that is produced on her place. Her present well water is so bad that it would make methane water look really good and she is still able to raise a super vegetable garden and lawn. She also believed the revenue from CBM development would benefit schools and provide jobs and tax relief. The water derived from CBM development is an added bonus.

Connie Morris lives in Otter and is a member of Citizens for Resource Development. She recognized the right to a clean and healthful environment under Articles 2 and 9 of the Montana constitution. However, there is also a national and state priority to find an economic supply of clean burning energy. MEPA is procedural and encourages productivity and enjoyable harmony between humans and the environment and protects the right to use and enjoy private profit free of undue regulation.

The Montana Constitution gives the legislature the responsibility for balancing the protection of the environment under Article 9.

The definition of EC and SAR as harmful parameters under the proposed rulemaking is redundant and is undue regulation. There are already numeric standards to monitor these parameters.

Under Montana law, sufficient credible evidence must be collected as to whether a water body is achieving compliance with water quality standards before changes are adopted and implemented. There has been insufficient time since the adoption of the current rules to measure the efficacy of their numeric standards. The cost of implementing erratic changes exerts a huge financial burden on agencies and the taxpayers. It is premature, unreasonable and capricious to adopt changes to EC and SAR without the required sufficient credible data.

Coal bed methane production is governed by Section 82-11-175. That law requires CBM water to be managed for use as irrigational stock water or another beneficial use, or to be reinjected into an acceptable subsurface strata or aquifer. The proposed rulemaking is unnecessarily redundant to this law.

Article 2 of the compact entered into by Montana for the conservation of oil and gas requires each state to prevent the drowning with water of any stratum capable of producing oil and gas. The proposed rulemaking on reinjection is inconsistent with this provision of the compact.

The zero discharge provision of the proposed rulemaking violates the maxim of jurisprudence that the law never requires that which is impossible or unreasonable. There's no credible data indicating that zero discharge through reinjection could have widespread practical application. The original petition states that reinjection of wastewater may be limited by site-specific geologic conditions.

The proposed rulemaking requires the developer to demonstrate by clear and convincing evidence through site-specific studies that the reinjection requirement is not technically feasible. This is excessive and redundant regulation. The EIS requires all of this information to be

gathered in the planning and development stage and is generally incorporated into industry practice.

The taxpayer has to pay for the agencies to administer the rules. In addition, the proposed rules ignore the private property rights of the surface owner who may not want to have reinjection wells on their property.

Consistency and continuity in the adoption and application of environmental rules is essential to protect and enhance Montana's economic well-being. Consistency and continuity are especially important to those who have made a financial commitment after completing an application for an environmental permit based on the existence of certain environmental rules. It is the policy of the state not to change requirements to the detriment of the applicant or permittee.

Ms. Morris also submitted her testimony in writing, as well as an undated letter to the BER and Governor Sweitzer requesting that rulemaking not be initiated. In the letter, she indicated that the initiation of additional rules would be undue government regulation of an already highly-regulated industry in violation of MEPA. She also indicated that an intent of MEPA is the protection of private property rights along with the environment and that the proposed rulemaking takes away private property owners' choice regarding beneficial uses. Finally, she indicated that real-time monitoring of the Tongue River by the USGS at the state line near Decker demonstrates that CBM development is not having an effect on water quality.

John Morris indicated that everything that he needed to say had been said.

Tom Emmons operates a ranch between Ashland and Broadus. His family has operated the ranch through five generations. Over the last 25 years, there has been more drought than periods of moisture. His family has constructed more than 30 miles of pipeline to help manage water and the ranch still runs short. There is a possibility of methane gas underlying his property, representing a new source of water. If water comes to the surface of his ranch as a result of CBM development, he wants to be able to use it without the restriction of the proposed rulemaking.

In his written comments, Mr. Emmons indicated that the water he uses for drinking and bathing was tested and has a saline and mineral composition far above the proposed numeric standards. Ranchers should be able to use CBM produced water for drinking water, not just for stock watering as provided in the proposed rules. Any Surface Agreement he executes will allow him the right to appropriate the CBM produced water. The BER does not have the right to appropriate water produced on his ranch.

Jim Guercio runs a ranch on Hanging Woman Creek and owns four to five miles of the Tongue River. A prior speaker indicated that Fidelity pumped over 100 million gallons of water, equivalent to about 11,000 acre-feet. That is less than 10% of the Tongue River drainage in one season and could farm only 3 to 4 thousand acres. There are 2 to 3 million acres in the drainage. Representing that it is scientifically possible to reinject this amount of water is misdirection.

The standards in the proposed rulemaking are too stringent and would be economically insurmountable for CBM developers. His neighbors, therefore, would be deprived of an opportunity for a new source of water. The science of the proposed rulemaking is incorrect.

Wyoming is enjoying a \$1.8 billion surplus. Every school in Wyoming is going to be rebuilt. It is the Montana legislature that has the responsibility to regulate the CBM industry responsibly.

Karen Brown lives in Arvada, Colorado. She represents 800 ad hoc members including companies, businesses, citizens, and farmers and ranchers predominantly in the Powder River Basin of Montana and Wyoming who support CBM development. There is no need to adopt new standards for EC and SAR. The standards adopted in 2003 are protecting irrigators on the Tongue, Powder, Little Powder and Rosebud creeks. This is proven by water quality measurements taken by the USGS at the gauging station on the Tongue River showing that water quality has not appreciably changed from pre-development levels in 1999. Additionally, the Agraeconomics Monitoring Protection Program does not show excess salinity or sodium in the soils. A considerable amount of whatever minor changes that have occurred in the water quality is due to the severe drought. Mandating reinjection is not a good idea. The one benefit of CBM development seen by hundreds of ranchers and farmers is the use of water either for irrigation, stock or dust mitigation. Whether to reinject should be left up to the operators and landowners.

There are limited aquifers in the Fort Union formation that have the capacity to accept reinjected water and reinjecting into coal seams defeats drawing off the water to extract the gas. While treatment may be economical at \$11 MCF, the industry is cyclical and treatment would not be economical at \$0.85 MCF.

The 30,000 irrigated acres in the Montana portion of the Powder River Basin will be protected by the current water quality standards and discharge permitting practices. The 2.5 million non-irrigated acres in the basin should be able to benefit from the water development associated with CBM production.

David Galt is the executive director of the Montana Petroleum Association. The petroleum industry does care about the people and environment of Montana. His family has a long history of ranching and landownership. MTP will present technical testimony at the next hearing.

Speakers That Were Neither Proponents or Opponent

Keith Hall lives in Miles City and has relatives that either ranch or are in the oil industry. He has a friend in Wyoming whose fields were ruined by the salt from CBM development. It is going to cost some money to develop the CBM industry. That cost should be born by customers of the CBM developer and not by the people of Montana. The BER should err on the side of what's best for the future and keep in mind the cumulative effects of CBM development that can occur over time. No one is saying that the resource should not be developed.

Bernard Crane believes that bringing a valuable resource to the surface and then injecting a toxic substance back into the ground is criminal. The CBM water should be used if it is of good

quality or treated if it is not. Over time, this will improve the quality of both surface and aquifer water. Mr. Crane also submitted his testimony in writing.

Penny Morgan is a state representative from west Billings. The Constitution is very clear that the legislature is the proper body to pass laws. The proposed rulemaking should not be considered rules but should be considered laws. If passed by the BER, the BER would be overstepping its authority and there will be repercussions from the legislative body. The BER should defer to the 2006 legislative session.

Chairman Russell then closed the public comment portion of the meeting. After taking a break, the BER addressed a request to extend the public comment period in order to submit economic studies that are being prepared but will not be completed until after the current period for public comment expires. Fidelity and the Petitioners did not object to extending the public comment period. Public comment was elicited on the extension and none given. The BER passed a motion to consider the request during a telephonic conference the following Monday.

The public was then invited to address the BER on any matter other than CBM development. There was no response and the meeting was adjourned.

Written Testimony

Bill Tramp irrigates in the valley and teaches earth and life science at Washington Middle School in Miles City. He indicated that only a small percentage of our planet is water and that 97% of it is salt water. Of the remaining three percent that is freshwater, 80% is locked up in ice. Surface water is only a few percent of the freshwater. Most rural families, and some urban families, rely on ground water for their fresh water supply. Our track record on the sustainable use of the fresh water resource is pretty sorry. Is he going to have to tell his students that even though groundwater is known to be essential, we choose to send it down the watershed anyway? The BER should require the water to be put back into the aquifers.

Pat Mischel has irrigated farmland that is served by the Buffalo Irrigation Project. He is a stockholder of MDU Resources, a Dawson Resource Council member and past member of the Montana AFL-CIO Executive Board. He referred to an article written by Suzanna Roffe and James Bauder with the MSU Dept. of Land Resources and Environmental Studies. The article indicated that the issues of concern with CBM extraction revolve around the disposal of large quantities of saline/sodic water released from the wells. A former executive secretary of the Montana AFL-CIO advised him that if Montana does not deal with the water problems of CBM, it will never see development of the resource. The proposed rulemaking is a solution to the water problem. He submitted a copy of the article.

David Schwarz is the general manager for the Buffalo Rapids Project. The Project serves more than 26,000 acres that raise sugar beets, hard beans, alfalfa, corn and small grains. Fifty-one percent of its soils are heavy and are at risk from cumulative impacts of CBM produced water. The Terry pumping plant is located 1.75 miles downstream from the confluence of the Yellowstone and Powder Rivers. The two rivers do not mix well. When pumps were pulled

from the Terry plant, there was a copper sulfate on the bronze impellers that was likely the result of CBM production. There are chemistry changes in the Yellowstone due to CBM development, at least immediately downstream of the confluence. This area is a spawning ground for sauger which do not do well in highly saline water. He provided maps and photographs of the Buffalo Rapids Project and photographs of the pumps with his written testimony.

Board of Environmental Review November 9 and 10, 2005, hearings summary approved:

JOSEPH W. RUSSELL, M.P.H.
CHAIRMAN
BOARD OF ENVIRONMENTAL REVIEW

DATE